STORING AND SHARING OF CONTENT

BACKGROUND

The present invention is a continuation-in-part of US Patent Application No.09/792,791, titled "Archiving and Sharing of Multimedia Content", filed on 02/23/2001 on behalf of Michael J. Jones et al. and assigned to the assignee of the present invention.

The present invention generally relates to the storing and sharing of personalized information and more particularly relates to apparatus and method for providing recorded personalized information on a computer storage medium included with a personalized packaging.

Mass market still image photography is at the entrance to the digital age. Of course, professional photography has been using digital storage and image enhancement for some time, but the digital capture and storage of images for consumers is a relatively new development. Consumer digital cameras are becoming common in the marketplace and consumers are beginning to acquire the cameras in rapidly increasing numbers. It is expected that digital cameras will overtake conventional film cameras based on the silver-halide, chemical, process. Digital cameras typically store the captured images in computer files on one of various digital storage media selected by the camera manufacturer and the user subsequently downloads the stored images to a computer, printer, or other external device for conversion to human perceptible form. Often a silver-halide print is digitized or the original digital camera image is re-stored on a CD using a still image specification like the professional "PhotoCD", a Kodak, Inc. proprietary technology, or "PictureCD", employing the more familiar JPEG standard,

based upon computer CD ROM storage technology. Obviously, the still images stored on a CD using the PictureCD standard are readable by a computer, but they are not generally readable by a conventional Video CD (VCD) player or a conventional Digital Versatile Disk (DVD) player. It should be noted that the term "compact disk" has a standardized meaning. The term "CD" has been used herein, however, to designate a physical storage medium having a general appearance and usage commonly known to the public and variously storing data, audio, video, and the like.

Consumers do not need to be familiar with computer technology to enjoy the content of digital format movies and digital format music. Digitally recorded movies and digitally recorded music are accessible and enjoyable without any computer involvement. Similarly a consumer today can buy a film camera or a video camcorder (even a digital video camcorder) and happily use it without any knowledge of computers. The film can be processed and printed by any number of photo processors, and the camcorder can be plugged into the TV at any time to view the family videos.

Digital storage of video content, movies and the like, is moving from the accepted analog videotape standard to a digital storage standard. For prerecorded consumer products, this digital storage is on a DVD medium, although high-end consumer video recording is being done using a digital videotape medium. At this time, a plurality of digital video standards exists, but the most widely accepted standards can be categorized into DVD standards (for which a listing of the applicable specifications may be found at www.licensing.philips.com/dvdsystems/dvdspecs.html) and Video CD (VCD) standards (generally referred to as the "White Book" and titled Video CD Specification Version 2.0, Philips Consumer Electronics B.V., April 1995) and variations and updates of these standards (for example, Super Video CD). While players for the higher-resolution DVD standard CDs can easily be designed to play VCD standard CDs (because the MPEG-2 standard data compression used by DVD also encompasses the MPEG-1 standard data compression used by VCD), the reverse is not easily accomplished and therefore is not done for economic reasons. Because of the Asian market

support for VCD (and because it is a relatively simple and inexpensive feature to add, due to DVD's use of MPEG-2 compression technology, which is a superset of VCD's MPEG-1 technology), most of the DVD players available in the US and worldwide markets support VCD as well as DVD. It should also not be ignored that VCD standard CDs are currently easier and less expensive to produce than DVD standard CDs.

In contrast to these familiar technologies, the purchaser of a digital still camera must have access to a computer (or a properly equipped computer printer), significant experience in using it (installing and using digital camera software is no easy matter), and available time to spend at the keyboard to produce hardcopy prints of acceptable quality. The consumer photography industry is attempting to address this problem by providing digital camera kiosks in retail locations that will accept and print digital photos. Unfortunately, this solution only recovers parity with the current silver-halide film development process. Furthermore, the consumer must still resort to a computer to access or share their digital photos and other content in the many ways enabled by digital technology.

A user-friendly offering is needed to allow people to easily and quickly create a rich source of information incorporating their experiences and to convey this source in a physical and personalized implementation to designated others.

SUMMARY OF THE INVENTION

A personalized storage medium and packaging is created to store at least one user specified computer file on a computer writeable storage medium having a predetermined physical shape. An image related to the stored user specified computer file is disposed on an outward facing surface of a first lamina of a package. The package includes a filler disposed between the first lamina and a second lamina, the filler including a pocket adapted to accommodate the predetermined shape.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGs. 1A and 1B are block diagrams of a system that produces and uses personalized recorded media and packaging in accordance with the present invention.

FIGs. 2A and 2B are representations of an exemplary postcard-like packaging employed in the present invention.

FIG. 2C is a cross section of the exemplary postcard of FIG. 2A.

FIG. 2D is an illustration of a plug which may be used in the exemplary postcard-like packaging shown in FIGs. 2A-2C.

FIG. 3 is a simplified sketch of a kiosk which may employ the present invention.

FIG. 4 is a block diagram of a computer configuration which may be employed in the kiosk of FIG. 3.

FIG. 5 is a flowchart of the operation of the kiosk of FIG. 3.

FIG. 6 is a flowchart of the process of image input selection which may be employed in the operation of the kiosk shown in the flowchart of FIG. 5.

FIG. 7 is a flowchart of the process of audio input selection which may be employed in the operation of the kiosk shown in the flowchart of FIG. 5.

FIG. 8 is a flowchart of the process of selection of a data input source which may be employed in the operation of the kiosk shown in the flowchart of FIG. 5.

FIG. 9 is an illustration of an alternative greeting card packaging which may be employed in the present invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Physical cards, such as postcards, greeting cards, and the like, are enhanced and personalized with a significant amount of digitized information contained on an inserted recorded medium such as a CD in an embodiment employing the present invention. Moreover, the external appearance of the cards are personalized with a photo or graphic chosen or created by the user.

Storing of personal content on a removable storage media in a format that is compatible with today's home entertainment centers (DVD and VCD

players), personal computer hardware (CD-ROM and DVD-ROM drives) and various application software for digital imaging (for example, applications such as PictureIt!™ available from Microsoft Corp.), and selected imaging appliances (for example, the PictureMaker™ kiosks of Kodak, Inc.) is becoming possible. The format of storage can include additional data for linking these different data formats and enabling user scenarios such as pausing a multimedia slideshow on a particular image of interest and printing a corresponding high-resolution image from data stored in a different format. Physical delivery of the medium that stores the content is accomplished by way of postcards or greeting cards or similar vehicles that provide a personalized packaging for the user. Usually, an image is considered to be a photograph, but it can also be considered to be various photograph derivatives (such as outlines, pixellations, and the like) and graphic representations such as line drawings, drawn pictures, cartoons, and the like.

Digital still cameras are improving in terms of functionality, image quality, ease-of-use, and affordability at an amazing pace. They currently exceed the capability and usability of other aspects of the digital imaging system. Currently, the HP PhotoSmart 912 camera captures 2.24 megapixel still images and can add audio annotations. The Fuji Finepix 40i camera takes 2.4 megapixel stills, 80 second quarter-VGA video files with sound (that are quite compelling when viewed on a television screen), and has a built-in MP3 (Motion Picture Experts Group 1, Layer 3 Audio) player. The Aiptek PenCam, an inexpensive digital camera, can take 75 small photos or a 10 second small video clip. Soon the consumer will have many choices for affordable digital cameras that are easy to use, fit in one's shirt pocket, and capable of the capture of large amounts of high quality photos and broadcast television quality video and sound. There is almost a certainty of strong consumer demand for easy-to-use products that support the archiving, viewing, and sharing of these personal media. Today's digital cameras use either built-in or removable memory. Inexpensive cameras typically offer a few megabytes of built-in memory, and more expensive cameras have a slot for CompactFlash™, SmartMedia™, Memory Stick™, or similar large memory capacity modules. Removable camera memory is expensive, however. Because

of this high cost of camera memory, most digital camera users own a limited amount that they reuse frequently. Typical user behavior is to bring a laptop computer along with them and offload camera pictures frequently. This extra hardware and manipulation is a barrier to consumers who wish to convert from film camera use to digital camera use. Nevertheless, today's digital camera and computer enthusiast can cope with having to frequently connect the camera to the personal computer to offload pictures. But the non-computer owner who is considering switching from a conventional film camera to a digital camera will need a solution similar to today's film paradigm. The photographer who is dependent on retailer photo-processing services must be able to afford enough digital camera memory to last between visits to the photo counter.

Consumers are not experienced with viewing their photos on their television (TV), however, they are very accustomed to viewing home video captured with a camcorder on a TV. Consumers have become familiar with the use of DVDs to play video movie content. Many of the DVD players available today in the US and worldwide market support an alternative format called Video CD (VCD, specified by the Philips/Sony White Book). This cross-video standard playback can be a great benefit in certain instances but only offers a partial solution to a much greater consumer expectation. Today's entertainment center is designed to offer access to professional entertainment media (e.g., TV shows, movies, and music). Non-professional (home) users desire to interact with home images (photos and video) in similar ways.

Printing has minimal support and adoption within the home entertainment center. The printing support that does exist is designed around user tasks such as printing web pages from services such as WebTV™ or printing material associated with Interactive TV (such as the recipe that accompanies a cooking show). At least two new requirements for entertainment center printing are being created. The first requirement is printing of local (i.e. stored on a local CD or DVD) content and includes the printing directly from the analog video signal, use of a view/print appliance, or the use of IEEE 1394-based printing from a DVD player properly equipped. The second requirement is linking, or cross-referencing, from the images being viewed to corresponding high resolution data.

Television screens produce good results with low-resolution images. VGA resolution images (640x480; approximately ¼ megapixel computer images) look very good on a television screen. Even quarter-VGA video (320x240) that is common in today's multimedia digital cameras is enjoyable on a TV. The result is that cameras optimized for television viewing can be very low resolution and inexpensive. Current experience is that inexpensive VGA digital cameras can be used to make compelling multimedia slideshows.

Almost all photo processors offer the extra-cost service of having one's photos scanned and stored on a CD-ROM disk as computer data files readable by a computer with a compatible applications program. This concept is well-understood by the market, though not yet widely adopted by consumers. The problem with the current capability is that the CD-ROM disks that are produced are mainly of use to the computer-based digital enthusiast. However, the availability of this service from photo processors seems to be a growing technology and manufacturing processes are in place to create the needed CDs. Furthermore, CD-RW drives, which can write as well as read CDs, have become widely available in consumer personal computers, partly due to the digital music phenomenon. It has become much more commonplace for computer enthusiasts to create music CDs with a custom collection of material and "burn" it on a CD. This practice is driving availability of CD writers and inexpensive CD media, and is establishing the consumer practice of using a computer to create media that will be played in the entertainment center.

There is no single technology on the market today for creating disks that are both affordable and widely compatible with today's DVD players. CD-R media is very affordable but it is compatible with only certain models of current DVD players. Empirical testing indicates that about 1 in 4 of today's DVD players will reliably play CD-R media, however, it appears that compatibility is improving in order to support home-burned music CDs. DVD-R writers and media are available today that have good compatibility with DVD players. However, the technology is expensive (perhaps 30 times more expensive than a CD-R disk). DVD+RW writers and media are not readily available but there are suggestions that they will experience good

compatibility and be offered at a lower disk price in the future. The most promising solution to this problem is a new effort by the OSTA (Optical Storage Technology Association – a CD and DVD industry standards body) to create a "MultiPlay" compatibility program to certify DVD players that support both CD-R and CD-RW media (as well as read-only CDs). When these certified players are introduced, then CD-R and CD-RW disks will be compatible with any DVD player that is MultiPlay certified.

A system that produces and uses personalized recorded media and packaging in accordance with the present invention is shown in the diagrams of FIGs. 1A and 1B. Content from a number of content sources is recorded on a single removable storage medium, a personalized packaging for the recorded medium is created to mail or otherwise deliver the recorded medium to a recipient, who recovers the content, to its optimum, using widely available consumer-type reproduction devices. In a preferred embodiment, a postcard is the packaging for a mini-CD. A mini-CD is well known as a smaller version (4 cm radius) of the ubiquitous 12 cm (4¾ in) diameter disk.

Four sources of content are shown in FIG. 1A, but are not necessarily exclusive. A source of still images 101 is coupled to a still image processor 103 for correction of image parameters (sharpness, contrast, color, etc.) and sometimes data compression prior to additional use. (The still image source is expected to provide a digital representation of the image in a high resolution data file such as a TIFF (Tagged Image File Format) or JPEG (Joint Photographic Experts Group) file). An analog still image (for example, a silver-halide film picture or slide) can also be scanned and converted into a digital representation). A source of digital video content 105 is coupled to a video processor 107 for image correction and data compression. (Analog video must first undergo digital conversion). An audio source 109 provides audio content, which can be associated with the video source 105 (as is often the case) or associated with the still image source 101 (as is becoming increasingly common with digital still cameras and the short video clips that are often created by still image cameras), or which provides stand-alone audio information. The audio input, when not directly associated with the

other content providers, is coupled to an audio processor 111 for digital sampling (when necessary), volume leveling, tone balancing, error correcting, and compression before being of further use. Information of other types, for example, text and graphic images, is accepted from a content source 113 , such as a personal computer, and coupled to a data processor 115.

In a preferred embodiment, the still image processor 103 is an image processing application program such as Adobe Photoshop® 6.0, Sierra Imaging Image Expert™ 2000, or ArcSoft Photostudio™ 2000, each of which can output image files to JPEG or TIFF standards from content in a variety of formats. The video processor 107 is a moving video processing application program offering video sequence editing, such as Ulead Video Studio™ 4.0, MGI VideoWave™ 4.0, Adobe Premier 5.0, or Adaptec CD Creator™ 4.0 Deluxe. Most of the aforementioned video applications programs accept an associated audio input with the video input and either alone, or with an adaptor, generate video output MPEG (Motion Picture Experts Group) standard format. The audio processor 111 can be chosen from many of the "ripping" tools available for obtaining the desired audio; e.g., the Music-Match Jukebox provides MPEG-1 layer 3 (MP3) and MPEG-1 layer 2 (MP2) output audio files and Windows Sound Recorder provides output into WAV files, which can be subsequently converted to MP3 or MP2 audio output files. While the data processor 115 could be essentially any applications program for file creation, an application program that creates metadata – descriptive data (such as titles, time information, or background information) for the other content files – is of particular usefulness for the preferred embodiment.

Digital processor 117 undertakes the process of taking the set of inputs created from the content sources and in an interactive session with the user/author, produces all of the translated (taking the content data in its current format and ensuring that it is made compatible with the appropriate output standard) data necessary for creating an output suitable for recording 119 ("burning") a CD 121 and printing 127 a selected image. In a preferred embodiment, an output (generally called computer files) for burning a CD from the digital processor 117 is created in folders (sub-directories) complying with

the CD-ROM(XA) and Video CD (White Book) standards and also includes, in a preferred embodiment, a "PICTURES" folder (with files compatible with the PictureCD specification), a "VIDEOS" folder (with files compatible with the MPEG-1 standard), an "AUDIO" folder (with files compatible with the WAV standard), and, optionally, an "OTHERS" folder (with files otherwise compatible with ISO 9660). The CD recording function 119 employs conventional hardware and software to take the foregoing disk pre-image information from the digital processor 117 and create, or "burn", the recording into the writeable CD disk 121. The digital processor 117 further creates a print file suitable for delivery to the printing device of 127 and includes a digital image to be printed on the package for the CD 121. It should be noted that the process depicted in FIG. 1A can have overlapping functions found in each block, depending upon the selected applications program's inherent capabilities.

The packaging for the CD computer writeable storage medium (a specialized postcard 125 in a preferred embodiment) is created by selecting an image from the still images, a frame from the video image, or a related high resolution image file. The selected image is presented to the user/author on a computer monitor for image enhancement, picture cropping, and other user-specified enhancements to the picture. Once the picture is satisfactory to the user, it is delivered to a printing device 127 (such as an HP970Cxi available from Hewlett-Packard Company) for the printing of the "picture" side of the postcard-like medium used as the packaging medium for the CD. The Mini-CD is inserted into the postcard-like packaging 125 and conventionally mailed.

When the postcard-like packaging 125 is received by the recipient, the recipient can remove the CD 121 and play it on a player, as depicted in FIG. 1B. Two commonly available consumer-type of players are depicted. A DVD/VCD player 131 has become a widely used entertainment device for consumers. Most players designed for DVD disk playback also play VCD disks because the MPEG-2 standard data compression used by DVD players also encompasses the MPEG-1 standard found on CDs using the VCD standard. Most players for DVD

disks are capable of playing audio CD disks, as well, thereby providing an audio output for a listener. Of course, the DVD/VCD player provides video output for display through a television video display device 133. Generally, the television display device conforms to broadcast television standards (NTSC (352 x 240 pixels, interlaced), PAL (352 x 288 pixels, interlaced), SECAM, etc.) and delivers video images at low resolution. Newer standards, HDTV for instance, provide a higher resolution (for example, 1280 x 1024 pixels, a little more than a megapixel in one implementation) in a wider screen format, but have not yet seen much market penetration. Still images are usually converted to a concatenated sequence of images often referred to as a "slide show". A slide show in a preferred embodiment is depicted as being delivered to a display 137 (which, in a conventional home environment, is most likely a television set). The slide show of still images can have a dwell time for each image set by the author for several seconds or more.

Still images that have been stored according to the PictureCD standard, for example, typically have a much higher resolution (for example, 1536 x 1280 pixels, approximately 2 megapixels) than the video presentation, but the conversion to standard broadcast television standards, or even HDTV standards, do not present the full resolution to the viewer. When the various outputs are linked or coordinated, presentation to the viewer is optimized for the highest fidelity, resolution, and the best quality of image presentation possible from the player and display device. A viewer watching video format content can select an image or frame of the video content and request it to be printed on a printing device 139 with a resolution better than the resolution of the image being viewed.

Another example of a common CD player is that of a CD-ROM player 141, normally associated with a personal computer 143. The usual function of such a CD-ROM player is to convey digital information (data, computer files, applications programs, etc.) to the computer 143 for subsequent actions. Advanced versions of the CD-ROM player include the capability to read and output DVD, VCD, still (PictureCD standard) format, and audio CD information to the computer 143. Such a player with DVD-playing capability is usually termed a DVD-ROM. In addition to the usual computer data/graphics display

for interaction by the user, at 145, the computer can provide video on the computer monitor display 147 (typically at resolutions better than that of conventional television sets). The display of still images from the PictureCD standard, and high fidelity image capture devices like digital cameras using other standards, can be better than that provided by conventional television sets. With the use of suitable applications programs, the full resolution of the stored images can be accessed and partially displayed (by a "zoom" feature) on the computer monitor but not as the full image. Linking of the stored information (in different formats) is available so that the optimum quality can be presented to the user. The linked image is then displayed on a video display 147 or printed on a printing device 151.

In a preferred embodiment, a postcard is the package used to deliver the personalized computer storage medium (a CD) to a recipient. The US Postal Service requires certain specifications to be met for the medium to be handled by the Service. The US Postal Service defines a postcard (and charges a special, lower, postcard rate) on a rectangular piece (or laminated pieces) of paper or card stock of uniform thickness having dimensions between 89 mm (3½ in.) and 108 mm (4¼ in.) high, 127 mm (5 in.) and 152 mm (6 in.) long, and 0.18 mm (0.007 in.) and 0.41 mm (0.016 in.) thick. The maximum allowed thickness is less than the thickness of a CD, so, despite the perception by the general public that they are dealing with a postcard, the "postcard" of the present invention requires first class postage. Accordingly, an exemplary postcard-like packaging for a CD is illustrated by the representations in FIGs. 2A, 2B 2C, and 2D. The postcard-like package is constructed by laminating together a card front lamina 201, a card back lamina 203, and a medial filler 205. The back lamina 203, shown in FIG 2a, is a rectangular piece of paper upon the outward facing surface of which is printed the address 207 of the recipient and instructions 209 for depackaging the CD storage medium. In an advanced version of a preferred embodiment, the first-class postage can be prepaid and also printed in known fashion on the back lamina. The front lamina 201, shown in FIG. 2B, has its outward facing surface printed upon with the selected image 210 by the printing device

127. The filler 205, which is cut or punched to form a pocket for the CD, is of 24 pound paper stock and is affixed to the back piece and the front piece with adhesive to yield the pocketed postcard 125 illustrated as a cross section 2C-2C in FIG. 2B. Moderate pressure is applied to the assembly and excess adhesive that seeps from the laminate is trimmed. In an alternative embodiment, the filler itself is a multilaminate; in yet another embodiment, the filler is porous. The dimensions of the postcard in the preferred embodiment are a width, W, of 15.25 cm (6 in.), a height, H, of 9.84 cm ($3\ ^{7}/_{8}$ in.) with a curved and tapered pocket 211 to accommodate a mini-CD. To accommodate easy insertion and extraction of the miniCD, the pocket 211 terminates within the postcard-like packaging with a radius, R_1, having a minimum dimension of 4.1 cm (1.6 in) and tapers outward to a slot 213 with a minimum linear dimension, S, of 8.9 cm (3½ in) to the edge of the postcard. In order to maintain a uniform thickness required by postal regulations a plug 217, shown in FIG. 2D, is available for insertion in pocket 211 after the miniCD is inserted. Since, in a preferred embodiment, the plug is a result of the cutting/punching of the filler 205, it has the complementary dimensions of the slot 211, itself; that is, a radius of 4.1 cm and an edge dimension, S', of 8.89 cm.

Thus, the mini-CD followed by the plug 217 are inserted into the pocket by the user and the postcard-like packaging is sealed before mailing by applying one or more stick-on labels over the open edge of the card. These labels are preferably round and transparent so that the front piece and the back piece of the postcard is minimally obstructed.

A postcard creation service may be offered in a commercial environment. Photographic film development minilabs have become common in multipurpose drugstores and large retail stores. Further developments in conventional film minilabs have resulted in very rapid photographic film development and optional conversion to digital image and image printing. An enhancement to a photoprocessing service includes an inclusion of a picture and postcard printing kiosk. A simplified sketch of a kiosk offering the present invention is shown in FIG. 3.

The desired output from the kiosk 301 is a hardcopy output such as a custom postcard essentially performing the function of a packaging for a miniCD. This miniCD is inserted into the postcard by the user, or, in advanced versions by the kiosk hardware itself. Inputs to the kiosk include images, audio, keyboard, computer, and transaction payment. Users couple a digital camera or a video camera to an input connector, preferably an IEEE 1394 port (although other standard ports can be employed), so that the image data files or the digital video can be uploaded to a computer arrangement in the kiosk computer. Analog video cameras are accommodated with composite video and S-video inputs and frame capture to obtain a single image for printing from either analog or digital video. The scanned images from conventional photographic film, either performed during a single event with the user or input from a storage medium like a Picture CD™, are also available as input. Additionally, a library of digital images is available for use in selecting an image to be printed on the postcard/packaging – a feature of particular interest when the kiosk is placed in a location frequented by tourists. In advanced versions of the kiosk, a digital camera and microphone are integrated into the kiosk so that pictures and sound can be taken at the kiosk, itself. Suitable and interesting background can be provided by the kiosk owner in this instance.

In any event, the user can be presented with a display of images from which to choose. This display, presented on a touch screen computer monitor 303 in the commercial embodiment, is preferably a matrix of thumbnail images, but can also be a "slide show" of images presented in full-screen format. The user may then choose an image from the image display for further processing and eventual printing. The images are each given a unique identifier (if they have not already been designated from the image source) and the user selects the image identifier via the touch screen monitor 303 or the keyboard 305. The kiosk monitor 303 presents a full-screen version of the image and offers the user an opportunity to enhance the image and to select the best crop for placement on the postcard/packaging.

Audio input comes from the digital camera or the video camera or from independent analog and digital audio playback devices, each of which may be coupled to the kiosk via standard connectors. Audio sound recordings, including sounds of particular local interest like waterfalls, crowd noises, etc. and perhaps coordinated with a selected library image as well as prerecorded background music, are made available for the user to select. The audio from the selected source, which may be in analog format or digital format (MP3, for example), is selected by the user's touch on the touch screen monitor 303. The audio input is then converted to MPEG-1 layer 2 (MP2) digital form (if it is not already so) in preparation for burning of the CD.

A hardwire USB port is the primary input for a user's computer to be coupled to the kiosk, although an infrared or an IEEE 802.11B wireless connection or both may also be provided. The user may upload a computer file containing a text or other message. If the user desires to compose a message on the fly, the keyboard 305 provides the means to enter an impromptu message for burning into the CD or as a printed message on the packaging.

The creation of the hardcopy output is paid for, in the preferred embodiment, by credit card. The user, prior to the input of images and other data, reads the list of charges for various services and options available, including the option of prepayment of the postage necessary for a postcard. The user then selects the services desired and swipes a credit card through a reader and approval is sought and granted in conventional fashion.

Included within the kiosk is a computer configuration such as that illustrated in the block diagram of FIG. 4. A computer 401, such as a Pavilion, available from Hewlett-Packard Company, employing a Pentium III, 800MHz microprocessor with 64 Megabytes of RAM and 10 Gigabytes of hard drive memory, is installed with selected applications programs such as Adobe Photoshop® 6.0, Sierra Imaging Image Expert™ 2000, or ArcSoft Photostudio™ 2000, for still image processing; Ulead Video Studio™ 4.0, MGI VideoWave™ 4.0, Adobe Premier 5.0, or Adaptec CD Creator™ 4.0 Deluxe for video sequence editing; Music-Match Jukebox or Windows Sound

Recorder for audio inputs; and Adaptec Easy Creator 4 for the burning of the CD. One or more content sources 403, 405 are coupled to the appropriate input port(s) of the computer in order that still images, video, audio, and other content can be delivered for processing. The human user/author interacts with the computer via one or more interfaces 407 (for example, a keyboard, a video monitor, and a mouse) to select and process the inputs and provide recipient address and postal franking. Output files from the computer 401 is delivered in writeable CD specified format to the medium recorder 409, which, in the preferred embodiment, is a CD-Writer Plus manufactured by Hewlett-Packard Company and to a printer 411, for example an HP970Cxi printer manufactured by Hewlett-Packard Company.

In an alternative embodiment, the operation of the kiosk is as follows, with reference to FIG. 5. The user approaches the kiosk in the retail store. In hand, the user has a digital camera and a credit card with which to authorize payment. When the transaction payment is completed, at 501, a selection of input ports for image content is made, at 503. The process of image input selection, in the preferred embodiment, is shown in the flowchart of FIG. 6. A presentation of the possible inputs is presented to the user to enable the user to select an input, at 601. If the selection of image inputs is of a digital camera, the user is prompted to connect the video and audio outputs of the camera to the appropriate connectors on the kiosk. The user is then prompted to upload, at 603, the image files stored in the digital camera. If the files are not in the TIFF format, they are converted at 605. If the selection is of a video camera, such as a camcorder, the user is prompted to connect the video camera's video and audio outputs to the appropriate connectors of the kiosk and a determination is made, at 607, whether the input is in analog or digital form. If the input is analog, the video is digitized in conventional fashion, at 609, and the user is provided the opportunity to select one frame of video, in conventional fashion at freeze frame 611, to be selected as the image to be printed. The frame is saved, at 613, in TIFF format. If the selection is of a conventional photographic film media, a further decision is made whether the film has already been scanned to digitize the image and

presented to the kiosk on a storage medium such as a compact disk, or presented to the kiosk as a film negative or positive print or slide, at 615. When the selection is of an internal file, the physical input is scanned as positive prints/negatives, at 617. If the files are external, the picture files are uploaded from the external disk, at 619, and the files converted to TIFF format, at 621, if necessary. If the selection is to browse the library of prestored pictures in the kiosk's picture library, the user is presented with a list of picture categories, at 623, and a selection of one of the categories is accepted, at 625. The files of pictures of that category are identified, at 627, and a link to audio files which are associated with the pictures is provided, at 629. In kiosks that are equipped with an internal camera, the selection of the internal camera option by the user activates the camera, microphone, and the computer monitor, at 631, to provide the user a video image of what is being observed by the camera. When the user is happy with the picture shown on the monitor, the user presses the snapshot button for a still image or start and stop buttons for a video image, at accept input 633, to cause the kiosk to save the image or video at 637. This process may be repeated until the user completes the message or for a predetermined maximum time (or storage) available for recording on the CD. The camera, microphone, and monitor are deactivated, at 639, and the pictures and audio are saved in TIFF format.

Returning to FIG. 5, the user may want to input more images so a test is made, at 504, to determine whether additional input is desired. Once the images are input from the selection step 503, a display of images in thumbnail format is made to the user, at 505. The user is provided the opportunity to select one of the images for printing on the front piece of the packaging, at 507. The selected image is displayed as a full-screen image on the monitor 303, at 509, to enable the user to modify and enhance the image and to crop and scale the image to fit the packaging profile, at 511.

An audio input selection is offered, at 513, should the user desire to include audio on the CD. The process of audio input selection is further illustrated in the flowchart of FIG. 7. In a preferred embodiment, the selection, at 701, is among none, external digital audio, external analog audio, internal

analog, and a library of audio files. If the selection is of an external digital audio source, the user is prompted to connect the source to a digital connector on the kiosk. (This connection may already have been made in connecting the digital camera or digital video camera and the associated audio is included in the video file). The external digital source is then activated and the audio file is input to the kiosk. If the file is not in MP2 format, it is converted in a preferred embodiment to an MP2 file, at 703. Similarly for an external analog audio source: the source is connected, activated, and the audio signal is digitized, at 705, into an MP2 file. The kiosk microphone may be used to record an audio file for burning on the CD and a selection of that mode results in the activation of a microphone, at 707, prior to the digitization of the audio into an MP2 file, at 705. A selection of a library of sound files may be made and a test is made, at 709, to see if a link from a selected prestored video file has been established. If such a link exists, the user is given the option, at 711, of selecting this file to be burned on the CD. If no link has been set from a selected video or if the user does not want to use the linked audio file, the user is offered, at 713, a listing of audio file categories. The user can make the selection, which is accepted, at 715, and a selected audio file is located, at 717. The user may, optionally, listen to the file before making a final selection. Once the audio file has been selected from any of the sources, if at all, the file is prepared for burning into the CD, at 515.

The user may elect to add a data file containing text or other information in place of or in addition to the audio file. Selection of a data input source, at 517, is illustrated in the flowchart of FIG. 8. The user may enter a text message from the kiosk keyboard 305 or may upload a computer data file from an external computer or storage medium. The selection is made by the user at 801. If an external computer source is selected, the user is instructed to plug the computer output port, or wireless equivalent, to the kiosk port. If the file is stored on portable medium, the medium is inserted into, for example, the disk reader of the kiosk and, in either event, the desired file is uploaded, at 803. If the user desires to type in a message, the keyboard

option is selected and the keyboard is used to cause the kiosk to accept the user's keystrokes, at 805. The completed message is stored in a word processing format in a data file, at 807. Depending upon whether the data file is intended to be burned into the CD or printed upon the back portion of the packaging, the data file from either input is prepared for burning into the CD or printing, at 809.

When the packaging is a postcard-like package and the user has paid an appropriate postage fee, a postal frank grant is accessed. The front page is composed, the print driver is then activated, at 521, and the image is printed on the front lamina of the packaging, at 523. The back page is composed, the print driver is again invoked, at 525, and any data file and the postal frank is printed on the back lamina of the packaging, at 527. In an advanced version of a kiosk, a label suitable for deposition on the CD is created and printed with an image and/or text defined by the user. The image files, the video files, the audio files, and the data files, as appropriate are then stored by burning into the CD, at 529. The packaging is assembled, at 531, and the CD and the packaging are ejected from the kiosk, at 533.

An alternate embodiment encompasses a larger format packaging such as a greeting card or a QSL card. An example of such a greeting card 901 is shown opened to the interior message portion in FIG. 9. Like the postcard embodiment, the greeting has a front lamina (not shown) printed with a personalized image or graphic, an interior message lamina 903, and a filler portion sandwiched between the front lamina and the interior message lamina. The filler portion is cut or punched to form a pocket 905 within the multilamina greeting card. Since the greeting card is expected to be sent by standard first class postage, its dimensions can be larger than the postcard described above. For example, the greeting card can have (opened) dimensions of 21.6 cm (8½ in.) by 28.0 cm (11 in) and therefore can accommodate a conventional sized CD (12.06 cm (4 ¾ in.) diameter). Thus the pocket 905 will have a terminal radius, R_2, interior to the greeting card of a minimum of 6.1 cm and a taper to an entrance slot 907, which has a linear dimension of 13.1 cm. A filler plug (not shown) similar to that used in the

postcard implementation may be used, if needed, to create a uniform thickness. The embodiment shown in FIG. 9 has the entrance slot 907 opening at the fold line 909 creasing the center of the open greeting card 901. Thus, a preferred embodiment offers the feature of self-captivation of the CD without need of a sealing device. Of course, the slot may open to any edge of the greeting card and sealed with a suitable adhesive label in additional alternative embodiments.

Thus, user-friendly physical packaging such as postcard-like media, greeting cards, and the like are enhanced and personalized with a rich source of user-created information disposed on an inserted recorded medium such as a CD. The external appearance of the cards are personalized with a photo or graphic chosen or created by the user.

I claim: